

Response to Office Action
Serial No. 09/575,839

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for directing a first network client requesting access to content to one of a plurality of content servers that can provide said content, comprising:

if one or more cost measurements are available that measure operational characteristics of the network based on communication between the first network client and one or more of the plurality of content servers, then directing the first network client to a said one of said content servers based on the one or more cost measurements;

otherwise, directing the first network client to a said one of said content servers using one or more cost measurements that measure operational characteristics of the network based on communication between a second client that is physically proximate to the first network client and one or more of the plurality of content servers.

2. (Currently Amended) A method as recited in claim 1, further comprising:
obtaining a new cost measurement when said first network client accesses said content server; and

using said new cost measurement as an indicator of operational characteristics of the network in connection with subsequent requests for access to said content that can be provided by said content server.

3. (Original) A method as recited in claim 1, wherein said content servers are associated with a network server having an identity, and wherein said network client requests content from said network server, and further comprising:

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mapping the identity of the network server to said content servers.

4. (Currently Amended) A method as recited in claim 1, further comprising measuring network performance between said first network client and a said one of said content servers.

5. (Original) A method as recited in claim 1, wherein an attribute of network performance comprises network latency.

6. (Currently Amended) A method as recited in claim 5, wherein network latency is measured passively by determining the time between a syn ack message sent by said first network client and an ack message sent by one of said content servers.

7. (Currently Amended) A method as recited in claim 4, further comprising measuring network performance between said first network client and another of said content servers.

8. (Currently Amended) A method as recited in claim 1, further comprising determining the location of said first network client by circular intersection.

9. (Currently Amended) A method as recited in claim 8, wherein said circular intersection comprises:

- (a) measuring the time that it takes for data to move from a plurality of network server locations to said first network client;
- (b) converting said times to distance equivalents;
- (c) determining a plurality of intersecting circles, wherein said distance equivalents are used as the radii of the circles and said network server locations are used as the centers of the circles; and

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(d) determining the physical location of said first network client from the intersection of said circles.

10. (Currently Amended) A method as recited in claim 1, further comprising inferring network performance of serving said first network client from said content server by determining a weighted average of network performance between said content server and other network clients based on physical proximity of said other network clients to said network client and performance of said content server for said other network clients.

11. (Currently Amended) A method as recited in claim 1, further comprising:

(a) measuring network latency between a content server and a plurality of other network clients;

(b) determining physical distances between said other network clients and said first network client;

(c) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said content server and said first network client; and

(d) inferring operational characteristics associated with a plurality of network clients to said first network client using said weighted average.

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12. (Currently Amended) A method for directing a first network client requesting access to content from a network server to one of a plurality of content servers that can provide said content, each said content server having an address, said network server having an identity, said method comprising:

(a) identifying the network server associated with the content requested by said network client;

(b) if one or more cost measurements are available that measure operational characteristics of the network based on communication between the first network client and one or more of the plurality of content servers, then identifying a said one of said content servers based on said identity of said network server and the one or more cost measurements;

otherwise, identifying a said one of said content servers based on said identity of said network server and one or more cost measurements that measure operational characteristics of the network based on communication between a second client that is physically proximate to the first network client and one or more of the plurality of content servers; and

(c) providing the first network client with the address of said content server identified in step (b).

13. (Currently Amended) A method as recited in claim 12, further comprising:

(d) obtaining a new cost measurement when said first network client accesses said content server; and

(e) using said new cost measurement as an indicator of operational characteristics of the network in connection with subsequent requests for access to said content that can be provided by said content server.

14. (Currently Amended) A method as recited in claim 12, further comprising measuring network performance between said first network client and a said one of said content servers.

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15. (Original) A method as recited in claim 12, wherein an attribute of network performance comprises network latency.

16. (Currently Amended) A method as recited in claim 15, wherein network latency is measured passively by determining the time between a syn ack message sent by said first network client and an ack message sent by said one of said content servers.

17. (Currently Amended) A method as recited in claim 14, further comprising measuring network performance between said first network client and another of said content servers.

18. (Currently Amended) A method as recited in claim 12, determining the location of said first network client by circular intersection.

19. (Currently Amended) A method as recited in claim 18, wherein said circular intersection comprises:

- (a) measuring the time that it takes for data to move from a plurality of network server locations to said first network client;
- (b) converting said times to distance equivalents;
- (c) determining a plurality of intersecting circles, wherein said distance equivalents are used as the radii of the circles and said network server locations are used as the centers of the circles; and
- (d) determining the physical location of said first network client from the intersection of said circles.

20. (Currently Amended) A method as recited in claim 12, further comprising inferring network performance of serving said first network client from said content server by determining a weighted average of network performance between said content server and other

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network clients based on physical proximity of said other network clients to said first network client and performance of said content server for said other network clients.

21. (Currently Amended) A method as recited in claim 12, further comprising:

(a) measuring network latency between a content server and a plurality of other network clients;

(b) determining physical distances between said other network clients and said first network client;

(c) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said content server and said first network client; and

(d) inferring operational characteristics associated with ~~a plurality of said other~~ network clients to said first network client using said weighted average.

22. – 31. (Cancelled)

32. (Original) A method for inferring operational characteristics associated with a plurality of network clients to an inferable network client, comprising:

(a) measuring network latency between a network server and a the plurality of network clients;

(b) determining physical distances between said network clients and ~~an~~ the inferable network client; and

(c) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said network server and said inferable network client.

33. (Currently Amended) A system for directing a first network client requesting access to content to one of a plurality of content servers that can provide said content, comprising:

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a programmed data processor; and

programming associated with said programmed data processor for:

determining whether one or more cost measurements are available that measure operational characteristics of the network based on communication between the first network client and one or more of the plurality of content servers,

if so, then directing the first network client to a said one of said content servers based on the one or more cost measurements;

if not, then directing the first network client to a said one of said content servers using one or more cost measurements that measure operational characteristics of the network based on communication between a second client that is physically proximate to the first network client and one or more of the plurality of content servers.

34. (Currently Amended) A system as recited in claim 33, further comprising programming associated with said programmed data processor for:

obtaining a new cost measurement when said first network client accesses said content server; and

using said new cost measurement as an indicator of operational characteristics of the network in connection with subsequent requests for access to said content that can be provided by said content server.

35. (Original) A system as recited in claim 33, wherein said content servers are associated with a network server having an identity, and wherein said first network client requests content from said network server, and further comprising:

programming associated with said programmed data processor mapping the identity of the network server to said content servers.

36. (Currently Amended) A system as recited in claim 33, further comprising programming associated with said programmed data processor for measuring network performance between said first network client and a said one of said content servers.

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37. (Original) A system as recited in claim 33, wherein an attribute of network performance comprises network latency.

38. (Currently Amended) A system as recited in claim 37, wherein network latency is measured passively by determining the time between a syn ack message sent by said first network client and an ack message sent by one of said content servers.

39. (Currently Amended) A system as recited in claim 36, further comprising programming associated with said programmed data processor for measuring network performance between said first network client and another of said content servers.

40. (Currently Amended) A system as recited in claim 33, further comprising programming associated with said programmed data processor for determining the location of said first network client by circular intersection.

41. (Currently Amended) A system as recited in claim 40, wherein said circular intersection comprises:

- (a) measuring the time that it takes for data to move from a plurality of network server locations to said first network client;
- (b) converting said times to distance equivalents;
- (c) determining a plurality of intersecting circles, wherein said distance equivalents are used as the radii of the circles and said network server locations are used as the centers of the circles; and
- (d) determining the physical location of said first network client from the intersection of said circles.

42. (Currently Amended) A system as recited in claim 33, further comprising programming associated with said programmed data processor for inferring network

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performance of serving said first network client from said content server by determining a weighted average of network performance between said content server and other network clients based on physical proximity of said other network clients to said first network client and performance of said content server for said other network clients.

43. (Currently Amended) A system as recited in claim 33, further comprising programming associated with said programmed data processor for:

- (a) measuring network latency between a content server and a plurality of other network clients;
- (b) determining physical distances between said other network clients and said first network client;
- (c) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said content server and said first network client; and
- (d) inferring operational characteristics associated with a plurality of network clients to said first network client using said weighted average.

44. (Currently Amended) A system for directing a first network client requesting access to content from a network server to one of a plurality of content servers that can provide said content, each said content server having an address, said network server having an identity, said method comprising:

- (a) a programmed data processor; and
- (b) programming associated with said programmed data processor for
 - (i) identifying a the network server associated with the content requested by said first network client;
 - (ii) if one or more cost measurements are available that measure operational characteristics of the network based on communication between the network client and one or more of the plurality of content servers, then identifying a said one of said content servers based on said identity of said network server and the one or more cost measurements; and

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(iii) otherwise, identifying a said one of said content servers based on said identity of said network server and one or more cost measurements that measure operational characteristics of the network based on communication between a client that is physically proximate to the first network client and one or more of the plurality of content servers; and

(c) providing the first network client with the address of said content server identified in step (b).

45. (Currently Amended) A system as recited in claim 44, further comprising programming associated with said programmed data processor for:

obtaining a new cost measurement when said first network client accesses said content server; and

using said new cost measurement as an indicator of operational characteristics of the network in connection with subsequent requests for access to said content that can be provided by said content server.

46. (Currently Amended) A system as recited in claim 44, further comprising programming associated with said programmed data processor for measuring network performance between said first network client and a said one of said content servers.

47. (Original) A system as recited in claim 46, wherein an attribute of network performance comprises network latency.

48. (Currently Amended) A system as recited in claim 47, wherein network latency is measured passively by determining the time between a syn ack message sent by said first network client and an ack message sent by said one of said content servers.

49. (Currently Amended) A system as recited in claim 46, further comprising programming associated with said programmed data processor for measuring network performance between said first network client and another of said content servers.

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50. (Currently Amended) A system as recited in claim 44, further comprising programming associated with said programmed data processor for determining the location of said first network client by circular intersection.

51. (Currently Amended) A system as recited in claim 50, wherein said circular intersection comprises:

- (a) measuring the time that it takes for data to move from a plurality of network server locations to said first network client;
- (b) converting said times to distance equivalents;
- (c) determining a plurality of intersecting circles, wherein said distance equivalents are used as the radii of the circles and said network server locations are used as the center of the circles; and
- (d) determining the physical location of said first network client from the intersection of said circles.

52. (Currently Amended) A system as recited in claim 44, further comprising programming associated with said programmed data processor for inferring network performance of serving said first network client from said content server by determining a weighted average of network performance between said content server and other network clients based on physical proximity of said other network clients to said first network client and performance of said content server for said other network clients.

53. (Currently Amended) A system as recited in claim 44, further comprising programming associated with said programmed data processor for:

- (a) measuring network latency between a content server and a plurality of other network clients;
- (b) determining physical distances between said other network clients and said first network client;

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(c) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said content server and said network client; and

(d) inferring operational characteristics associated with a plurality of network clients to said network client using said weighted average.

54. – 63. (Cancelled)

64. (Currently Amended) A system for inferring operational characteristics associated with a plurality of network clients to an inferable network client, comprising:

- (a) a programmed data processor; and
- (b) programming associated with said programmed data processor for
 - (i) measuring network latency between a network server and a the plurality of network clients;
 - (ii) determining physical distances between said network clients and ~~an~~ the inferable network client; and
 - (iii) computing a weighted average of said latency measurements as a function of said distances, wherein said weighed average comprises an estimate of the latency between said network server and said inferable network client.